RECENT ADDITIONS TO THE PONTONIINE SHRIMP FAUNA OF AUSTRALIA.

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ABSTRACT

Recent additions to the pontoniine shrimp fauna of Australia are reviewed and data are provided on seven species not previously known from Australia: Onycocaris spinosa Fujino and Miyake, Periclimenes mahei Bruce, Platypontonia brevirostris (Miers), Pontonia stylirostris Holthuis, Tuleariocaris holthuisi Hipeau-Jacquotte, Vir orientalis (Dana) and V. philippinensis Bruce and Svoboda. Recent nomenclatural amendments are included. The number of species presently known is increased from 136 to 168 and their distributions and zoogeography are discussed.

KEYWORDS: Crustacea: Decapoda: Palaemonidae, Australian fauna, recent additions, new records, zoogeography, Indo-West Pacific.

INTRODUCTION

In 1983, Bruce (1983a) provided a review on the occurrence of 136 species of pontoniine shrimp in the seas around Australia, described up to 1980. Since that publication, three of the species, of the genus Anchistioides, have been transferred to the resurrected family Anchistioididae Borradaile, and two species, of Gnathophylloides, have been transferred from the family Gnathophyllidac Dana. Two of the species of Periclimenaeus have now been placed in separate monospecific genera. In addition, 21 new species of pontoniine shrimp have been described from Australian waters, including four new monospecific genera. Seven species previously recorded from the Indo-West Pacific have also been found in Australian waters, and a further seven species are reported here for the first time. The possible occurrence of Coralliocaris macrophthalma (H. Milne-Edwards) has been reported from Heron Island, Queensland (Bruce 1977), but because of its dubious status, it is not considered further in this review. These additions increase the total number of species known from Australia to 168.

Although a rich and diverse fauna is present in the seas around Australia, comparison with other regions is difficult as comparable studies in many areas have not yet been carried out. Although detailed studies of the Indonesian fauna have been made through the activities of the Siboga and Suellius expeditions (1899-1900, 1929-1930), these were carried out before the common use of SCUBA equipment. Undoubtedly many of the recently discovered tropical Australian species will be found to also occur in Indonesian waters in due course, probably together with much that is completely new. The pontoniine fauna of the Philippines is not well known, and that of Papua-New Guinca even less. All these areas, with their extensive recf systems, the primary habitat for most pontoniinc shrimps, may be expected to have a pontoniine fauna at least as diverse as that of Australia.

The enumeration of species follows the listing given in Bruce (1983a), after adjustment for the alterations mentioned above. Species with numbers represent new records; species without numbers (cited as -) represent nomenclatural changes.

ANNOTATED SPECIES LIST

Genus Apopontonia Bruce, 1976

134. Apopontonia dubia Bruce, 1981: This species was originally described from a single female specimen from 20m depth at Shag Rock, off North Stradbroke Island, Queensland, collected in 1979 in association with a

sponge, Ircinia cf. echinata (Keller) (Bruce 1981). It has subsequently reported from Heron Island, Queensland (Bruce 1983f); recently from 43 m depth, off New Caledonia. The genus contains only two other species, A. falcirostris Bruce, known only from the type specimen from 73 m depth off Madagascar, and the following species.

135. Apopontonia tridentata Bruce, 1988: A single ovigerous female of this species was collected in 1983 from the Northwest Shelf from 54 m depth at 19° 41.9'S, 117° 57.15E (not 17° 57.15'E, as given in the original description (Bruce 1988b)). There have been no further reports of this species, whose host remains unidentified, but is most probably a sponge.

Genus Carinopontonia Bruce, 1988

136. Carinopontonia pancipes Bruce, 1988: The only known specimen of this unusual shrimp, unfortunately lacking many of its appendages, was collected from 83 m depth on the Northwest Shelf at 19° 04.4'S, 118° 47.55'E in 1983 (Bruce 1988b). The host of this species is unknown, but it is certainly a commensal species and a coelenterate association seems highly likely.

Genus Chernocaris Johnson, 1967

137. Chernocaris placunae Johnson, 1967: Twelve specimens were collected in 1981, from Placuna placenta from 27 m depth in the Arafura Sea at 12° 58.0'S, 132° 10.0'E (Bruce 1983d). This is only the second recorded occurrence of this species, otherwise known only from Singaporc.

Genus Conchodytes Peters, 1875

- Conchodytes kempi Bruce, 1989e: This species was referred to in the list given by Bruce (1983a) under the name of C. biunguiculatus Paulson 1875. There is still doubt as to the distribution of Paulson's species and whether or not it occurs in Australian waters. Conchodytes kempi has been reported from the Andaman Islands and the Philippines, and it seems likely that Australian specimens will belong to this species. Further study of Conchodytes specimens from pinnid hosts will be necessary before the general distribution of these shrimps can be satisfactorily clarified.

138. Conchodytes maculatus Bruce, 1989: A pair of specimens and a single male specimen were first collected from pearl oysters, Pinctada maxima, from about 40 m depth in the Arafura Sea, at about 16° 33.5'S, 121° 25.75'E in 1985 (Bruce 1989c). There are no other known specimens of this species.

Genus Dasella Lebour, 1945

139. Dasella ansoni Bruce, 1990d. A male and ovigerous female were found together in an ascidian host, Phallusia depressiuscula Heller, from 27 m depth in the Arafura Sea, at 12° 58.0'S, 132° 10.0'E collected in 1981. (Bruce 1983b). No further occurrences have been reported.

- Dasella brucei Berggren, 1990: A specimen of this species was initially reported by Bruce (1981a), who recorded a single male in the ascidian Herdmania monus from Heron Island, Queensland, as D. herdmaniae, from 14 m dcpth. This species has been recently recognized as a distinct species, so far known from type material only, by Berggren (1990). Dasella herdmaniae is known only from southern India and Mocambique.

Genus Epipontonia Bruce, 1977

140. Epipontonia anceps Brucc, 1983: First described from four specimens from Heron Island, southern Great Barrier Reef from 18 m depth collected in 1979 from a sponge host, Dysidea sp. (Bruce 1983c). There have been no further records of this species. The genus contains one other species, E. spongicola Bruce, 1977 known only from Kenya.

Genus Exopontonia Bruce, 1988

141. Exopontonia malleatrix Bruce, 1988: A single ovigerous female specimen of this species was collected from pulverized coral rubble from intertidal reef flat at Ashmore Reef. Timor Sea in 1987 (Bruce 1988a). There are no other records of the species, whose host is unknown, but which may be an associate of sponges.

Genus Gnathophylloides Schmitt, 1933

142. Gnathophylloides mineri Schmitt, 1933: First recorded in Australian waters from the North Solitary Islands, New South Wales, from 12 m depth, in association with the urchin Tripneustes gratilla (L.) collected in 1988 (Bruce 1989a). Originally described from Caribbean specimens, this species is now also known from Malpelo Island, Colombia; Hawaii, Tonga, Zanzibar and the Seychelle Islands, and is therefore one of the few Australian shrimps that have a circumtropical distribution. The Australian records also represent the most southerly extent of the distribution of

this species.

143. Gnathophylloides robustus Bruce, 1973: This species, known only from the type material, a male and three ovigerous females, was found on the sea-urchin, Centrostephanus tenuispinus H.L. Clark at 3 m depth off Point Moore, Geraldton, Western Australia (Bruce 1973). There have been no subsequent records of this shrimp.

Genus Hamopontonia Bruce, 1970

144. Hamopontonia essingtoni Bruce, 1987: Described from 13 specimens from Coral Bay, Port Essington, Cobourg Peninsula, in association with a coral host, Stylophora pistillata (Esper) collected in 1985 from 6 m depth (Bruce 1987a). No further records have been reported.

Genus Miopontonia Bruce, 1985

145. Miopontonia yongei Bruce, 1985: This species is known only from a male and an ovigerous female collected from 40 m and 80 m depth on the Northwest Shelf, by the FRV Soela in 1983, from stations at 19° 29.0'S, 118° 52.0'E and 19° 04.3'S, 118° 55.5'E respectively (Bruce 1985). The host animals were not identified but are considered most likely to be gorgonians or antipatharians. The genus Miopontonia is monospecific and most closely related to the Caribbean genera Coutierea Nobili and Pseudocontierea Holthuis.

Genus Onycocaridites Bruce, 1987

146. Onycocaridites anomodactylus Bruce, 1987: The type material and only known specimens of this species, a damaged male and female, were obtained from an unidentified sponge from 60 m depth in the Arafura Sca, at 10° 40'S, 133° 50'E in 1986 (Bruce 1987c).

Genus Onycocaris Nobili, 1904

147. Onycocaris spinosa Fujino and Miyake, 1969: Not previously reported from Australian waters, a male and two ovigerous females were collected from a depth of 10 m depth in a blue sponge on the reef slope off Heron Island, Queensland, in 1980 by R. Boer. Originally described from Yoron-jima,

Ryukyu Islands, and subsequently from Okinawa, there have been no other records of this species.

Genus Orthopontonia Bruce, 1982

- Orthopontonia ornatus (Bruce, 1969): This species was referred to in the previous report (Bruce 1983a) under the name of Periclimenaeus ornatus. Orthopontonia is a monospecific genus and O. ornatus occurs from East Africa to Australia. The species is an associate of sponge hosts.

Genus Periclimenaeus Borradaile, 1915

148. Periclimenaeus orontes Bruce, 1987: Known only from a single ovigerous female specimen, collected on Orontes Recf off Port Essington, Cobourg Peninsula, from a sponge host Jaspis stellifera (Carter), from a depth of 3 m depth in 1982 (Bruce 1987a). There have been no subsequent records of this shrimp.

149. Periclimenes agag Kemp, 1922: Bruce (1990d) recently examined specimens of this species from Lizard Island, Queensland, from baited traps set at Coconut Bcach, Watson's Bay and off Eagle Island at 1-17 m depth collected by S. Keable in 1988. There have been no previous records of this species from Australian waters. Originally reported from the Andaman Islands by Kemp (1922), and subsequently from the Red Sea, New Caledonia and the Marshall Islands, the species is probably a free-living micropredator.

150. Periclimenes alegrias Bruce, 1987: First found at Coral Bay, Port Essington, Cobourg Peninsula, and subsequently at North-West Vernon Island, this species is known from only four specimens, from 2-4 m and 8 m depth in association with crinoid hosts, Stephanometra spicata (Carpenter), Lamprometra palmata (Müller) and Comanthina variabilis (Bell) (Bruce 1987a). There have been no further reports of this species.

151. Periclimenes anacanthus Bruce, 1989: A dozen specimens of this species were first collected from Zostera beds in southern Moreton Bay, Queensland, in 1987 (Bruce 1989b). There have been no subsequent reports of this species, which is probably free-living.

152. Periclimenes andamanensis Kemp, 1922: Shrimps of a taxon resembling this species were reported from shallow-water seagrass beds throughout Moreton Bay, Queensland, by Wadley (1978), as Periclimenes nr.

andamanensis. Some specimens also referred to this taxon by Wadley, from 3m depth over *Posidonia* beds from the South West Arm, Port Hacking, New South Wales, have also been examined, but unfortunately no second pereiopods have been preserved, so the identification can not be fully confirmed.

153. Periclimenes darwiniensis Bruce, 1987: First discovered at Weed Reef, Darwin Harbour, Northern Territory, in 1985. this species is now known to be moderately common in intertidal pools in Darwin Harbour (Bruce 1987b) and also occurs in the Gulf of Carpentaria. The species is apparently freeliving, and presumably a micropredator.

154. Periclimenes denticulatus Nobili, 1906: A single male specimen from Lizard Island, Queensland, lacking both second pereipods, has been referred to this species. The specimen was caught in a trap at 37 m depth (Bruce, 1991a). The species was originally described from Gatavake, Gambier Islands, and subsequently reported only from the Tuamotu and Marshall Islands and the northern South China Sea.

- Periclimenes gonioporae Bruce, 1989d: This species was included as a nomen midnm in Bruce (1983a). A description of this species has been recently published, thereby validating the use of this name (Bruce 1989d). Periclimenes gonioporae is an associate of Lobophyllia and seleractinian corals (Goniopora, Galaxea, Porites and Montipora).

155. Periclimenes franklini Bruce, 1990b: A deep-water species, collected from about 300 m, at 17° 21'S, 146° 48.52'E in the Coral Sea in 1986. This species, whose host has not been identified, is thought to be probably a gorgonian associate (Bruce 1990b).

156. Periclimenes laccadivensis (Alcock and Anderson, 1894): A single female specimen has recently been caught at 720 m depth off Cape Freycinet, Tasmania (Brucc 1991a), and represents one of the few deep-water and southerly components of the Australian pontoniine fauna. Previously recorded from the Laccadive Islands, South China Sea, and off Hawaii, it is the most southerly occurrence of a pontoniine shrimp with an otherwise Indo-West Pacific distribution. The species is possibly associated with gorgonians.

157. Periclimenes sp. nov. a - Bruce, 1991a: A single specimen of a new species has been recorded (currently in press) from a trap at

23 m depth from Chinaman's Ridge, Watson's Bay, Lizard Island, Queensland (Bruce 1991a). This species is known only from a single occurrence, and is thought to be of free-living habits.

158. Periclimenes mahei Bruce, 1969: Not previously reported from Australian seas, numerous specimens including ovigerous females were collected from a colony of Pocillopora damicornis from Point Quobba, Western Australia, in 1980. This species has been previously recorded only from the Seychelle Islands, Comoro Islands and Zanzibar.

159. Periclimenes sp. nov. b - Bruce, 1991a: This species (in press) known only from the holotype specimen collected in a trap at 3.5 m depth at Blue Lagoon, Lizard Island, Queenland (Bruce 1991a). It is probably a commensal species, possibly associated with echinoderms (echinoids?).

160. Periclimenes venustus Bruce, 1990d: Numerous examples of this species were collected from Port Essington, Cobourg Peninsula in 1985, mainly from unidentified anemoncs, but with two lots from Heliofungia actiniformis, mostly from unrecorded depths, but some from 2.5 - 3 m depth (Bruce 1991b). Except for its colour pattern, this species is closely similar to P. holthuisi Bruce, and it is likely that some of the specimens previously identified as P. holthnisi, particularly where the original colour patterns were not recorded, will prove to belong to P. venustus on reexamination. Periclimenes venustus is also known from Scott Reef, Western Australia and the Philippines (Bruce 1989e).

161. Periclimenes yaldwyni Holthuis, 1959: Known only at present from one male and three ovigerous females collected in 1983 from 16-28m depth in Mercury Passage, off Maria Island, Tasmania (Bruce and Kropp 1984). This species was first described from New Zealand material (as Brachycarpus audouini Bate 1888), and is one of the small number of carideans occurring in both southern Australian and New Zealand waters.

Genus Periclimenoides Bruce, 1990c

- Periclimenoides odontodactylus (Fujino and Miyake, 1968): This species was referred to in the species list given by Bruce (1983a) under the name of Periclimenaeus odontodactylus. The genus is monospecific, and P. odontodactylus has been reported from Japan,

Hong Kong and Australian waters only, in association with sponge hosts, (Bruce 1990e).

Genus Platypontonia Bruce, 1968

162. Platypontonia brevirostris (Miers, 1884): This species has not been recorded previously from Australian waters. A pair of specimens were collected by R. Boer from a specimen of Lopha cristigalli from 20 m depth on the reef slope of Heron Island, Queensland in 1980. This species was first described from specimens from the Seychelle Islands, collected by the H.M.S. Alert Expedition (1882), with further material subsequently also collected from the Seychelle Islands. There have been no reports of the species from other localities.

Genus Pontonia Costa, 1844

163. Pontonia stylirostris Holthius. 1952: This species has not been previously recorded from Australian waters. A single incomplete male specimen, with the characteristic rostrum and minor second perciopod, was found amongst coral rubble from 42 m depth off Townsville, Queensland, at 18° 42'S,. 147° 1.0'E by R.A. Birtles in 1979. This species has only been previously reported from Indonesia, between Misool and New Guinea, at 32 m depth, and from Tanganyika and Oman. Its associations have not been identified, but are likely to be ascidians.

Genus Tuleariocaris Hipeau-Jacquotte, 1965

164. Tuleariocaris holthuisi Hipeau-Jaequotte 1965: Not previously recorded from Australian waters, a pair of specimens were found on *Diadema setosun* Leske, at Myora Light, North Stradbroke Island, at 0.5 m depth in September 1967.

Genus Typton Costa, 1844

165. Typton dimorphus Bruce, 1986: A male and ovigerous female, eollected from eoral rubble, although not necessarily a natural pair, were found in a sample from 5 m depth on Ashmore Reef, Timor Sea, at 12° 15.0'S, 123° 00.0'E in 1984 (Bruee 1986). No other specimens are known. Like other Typtou species, T. dimorphus is likely also to be a sponge associate.

166. Typton nanus Bruce, 1988: Typton nanus is known only from the female holotype specimen, collected in 1985, from 40-46 m

depth on the Northwest Shelf (Bruce 1987e). Its host remains unidentified, but is presumably a sponge. This shrimp is one of the smallest pontoniine shrimps known, with a postorbital earapaee length of only about 1.0 mm.

Genus Vir Holthius, 1952

167. Vir orientalis (Dana, 1852): A single example of this species, the first recorded from Australian waters, was collected by N. Coleman in 1979 from 10 m depth from Osprey Reef, Coral Sea, from an unidentified coral host. The species was first described from the Sulu Sea and was subsequently reported from Kenya, Zanzibar, Seychelle Islands, Andaman Islands, Mariana Islands and the South China Sea.

168. Vir philippinensis Bruee and Svoboda, 1984: This species has not been recorded previously from Australian waters. Two specimens were collected from Pleurogyra sinuosa from 8 m depth by J.E.N. Veron, from Fitzroy Reef, Queensland, in 1980. A further specimen was collected by T. Fromm, from Euphyllia sp., off Lizard Island, Queensland, in 1987. The species was first described from specimens from Cebu, Philippine Islands, and it has since been reported from Okinawa, Ryukyu Islands.

DISCUSSION

At present, 168 species of pontoniine shrimp, of 46 different genera, are known to occur in Australian waters. Four of these genera, all monospecific, are not yet known to occur outside Australian seas. Of the remaining 42 genera, 17 are also monospecific. As some 308 species have been reported from the Indo-West Pacific region as a whole, about half (54.2%) may be found in Australian waters, and 86% of the known genera are also represented in the Australian fauna.

Of the 168 Australian species, 141 occur on the eastern seaboard, with 49 on the northern and western, and only 6 on the southern coasts. The high figure for the eastern coasts is probably a reflection of the presence of the Great Barrier Reef combined with the increased scientific collecting effort that it has attracted over many years. Only one species, Anchistus custos, an associate of pinnid molluses, occurs in all three regions. Twenty-four species (14.3%) have so far been found to occur in both eastern and north-western regions. Con-

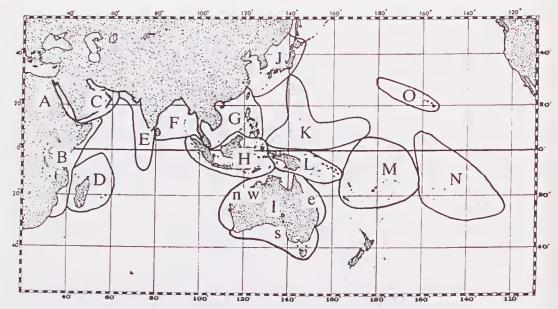


Fig. I. Subdivision of Indo-Pacific zoogeographic zones, relating to areas described in Table 1. A, Red Sea, B, East Africa. C, Southern Arabia, Arabian Gulf, Gulf of Oman. D, Madagascar, Comoro, Mascarene and Seychelle Islands. E, Western Indian peninsula, Maldive, Laccadive and Chagos Islands. F, Sri Lanka, Bay of Bengal. Andaman and Nicobar Islands, Burma. G, Malaya, South China Sea, Taiwan, Philippines. H, Indonesia. I, Australia (e, eastern: nw, north-western: s, southern). J, east China, Japan, Ryukyu Islands, Korea. K, Marshall, Caroline and Marianas Islands. L, Papua New Guinea. M, New Caledonia, Fiji, Vanuatu, Tonga, Kiribati, Tuvulu, Samoan and Phoenix Islands. N, Tokelau, Cook, Line, Society, Austral, Tuamotu and Marquesas Islands. O, Hawaiian Islands. P, Eastern Pacific region.

versely, 115 species (168%), including 13 "endemies" (7.7%), arc known from the eastern coasts only and 23 species, including 18 "endemies", occur only on the north-western coasts.

Many of the Australian species belong to taxa with very wide Indo-West Paeifie distributions. Thirty two species are also known from the Red Sea, while 80 (48.2%) species are known from the east coast of Africa, with 82 (49.4%) from the combined Red Sea-East African region. The central East African region, principally Kenya and Tanzania, has a pontoniine shrimp fauna of 134 species (Bruce 1976), of which 80 species (60%) have so far been found to occur around Australia. The pontoniine fauna of the Pacifie Ocean has not yet been adequately examined. The faunas of the extensive reef systems and deeper waters have not yet been generally studied in detail, except in the region of New Caledonia. Diversity appears to decrease in an easterly direction and only 19 species found in Australian waters occur also in the eastern parts of the Indo-West Pacific region (Fig. 1, zones N,O,) but several Indo-West Paeific species have ranges that extend to the eastern American

seabord. Of the species presently known to do so, six oceur in Australian waters (Allopontonia iaini, Fennera chacei, Gnathophylloides mineri, Harpiliopsis depressa, H. spinigera and Periclimenes soror). These species, which are all commensal associates of other marine invertebrates, also occur in East Afriean waters and therefore have ranges that extend across the whole Indo-Pacific region, but only G, mineri has so far been found in the Atlantie region, although Palaemonella rotumana has now extended its range through the Suez Canal into the eastern Mediterranean Sca (Holthuis and Gottlieb 1958). No free-living Indo-West Paeifie speeies have yet been reported from the Eastern Paeific region.

As the pontoniine shrimp faunas of Indonesia and New Caledonia have been studied in more detail than many of the adjacent regions, they may be conveniently compared with the fauna of Australia, although all must still be considered incompletely known. Such are the vagaries of field collections that even such an abundant and widely distributed species as *Periclimenes spiniferus* has not yet been formally recorded from New Caledonia, although it is inconceivable that it is absent from the

coral reefs there. The almost equally common Harpiliopsis beaupresii has also apparently not been collected. As further collecting is carried out, it is expected that the overlap between the faunas will increase, although all regions may be expected to have some indigenous species. At present, 204 species are known from the combined faunas of Indoncsia, Australia and New Caledonia, about twothirds of the number of species occurring in the whole Indo-West Pacific region, with 87 species from Indonesia (Holthuis 1952; Bruce 1983e; Fransen 1989) and 67 from New Caledonia (Bruce 1990a, 1991b). Eighty-seven of the 168 species found in Australia (49%) are also found in Indonesia or adjacent parts of Papua-New Guinea. The Siboga-Snellius collections in Indonesian waters and more recent collections in New Caledonian waters have indicated that a number of pontoniine shrimp occur in depths of over 100 m. These species are particularly poorly represented in the Australian fauna duc to lack of deep-water sampling. At present only Periclimenes alcocki, P. franklini, P. hertwigi, P. laccadivensis and Mesopontonia gorgonicola are known from these depths, 2.8% of the Australian fauna, with P. laccadivensis reaching the greatest depth at about 720 m. In Indonesia, only four species occur in 100 m or over, representing 3.4 % of the pontoniine fauna but nine species, 15%, of the New Caledonian fauna have been found in these depths.

Of the 33 species that are presently known only from Australian waters, it is difficult to consider that many of these are truly endemic, that is, with a distribution limited to Austra-

lian waters. Due to the small size and cryptic behaviour of most of species, it is probable that many have so far been merely overlooked in other parts of the Indo-West Pacific region. This applies particularly to the recently described taxa from the northern and eastern coasts of Australia, which seem highly likely to be components of the general Indo-West Pacific marine fauna. Species recently described from the Great Barrier Reef have already been found as far away as the Ryukyu Islands (Periclimenes magnificus: Bruce 1979; Nomura et al. 1988). Species from the south are more likely to be truly endemic and possibly members of an earlier marine Gondwana fauna. Species such as Periclimenes aesopius, the first pontoniine shrimp to be described from Australian waters (Bate 1863), is still only known from St Vincent Gulf, South Australia. It seems probable that it is restricted to this region, and may be a true relict. Another candidate as an endemic species is Pontonia minuta, first described by Baker (1907) from a single specimen from an unrecorded host, with a further occurrence at Meroo Point, New South Wales, indicating a rather less restricted distribution than P. aesopius. Periclimenes aesopius is a conspicuous associate of anemones. Pontonia minuta is undoubtedly a commensal species but probably not a truc Pontonia s. str., and its host remains to be identified; polychaete worms have been suggested. Once the host has been identified, the distribution of P. minuta, which is probably dependent on that of its host and closely related species, may be rapidly clarified.

Table 1. The Indo-West Pacific distributions of the Australian pontoniine shrimp fauna (+ = species present; O = species presently known only from Australian waters; ? = uncertain record)

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SPECIES	LOCALITY LOCALITY																	
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									nw	e	s							-
1. Allopontonia iaini		+								+								+
Anapontonia denticauda		+		+				+		+								
3. Anchistus australis							+	+	+	+			+		+			
4. Anchistus custoides										+		+	+					
	+	+	+	+	+	+	+	+	+	+	+			+	+			
5. Anchistus custos		+		+		+	+			+			+		+			
6. Anchistus demani		т.		•	•					+			+	+	+			
7. Anchistus gravieri						+	+	+		1	•	+	+	+	+			
8. Anchistus miersi	+	+		+	+		-			7	•	+			+			
9. Anchistus pectinis		+				+				+						•		
10. Apopontonia dubia										+	•				+		•	
11. Apopontonia falcirostris				+						+								
12. Apopontonia tridentata									0								•	
13. Carinopontonia paucipes									0									
	•						+		+									
14. Chernocaris placunae			•			+	+			+								
15. Conchodytes kempi							7		o									
16. Conchodytes maculatus			•													:		
17. Conchodytes meleagrinae	+	+	+	+	+	+	+		+	+		+	+	+	+	+	+	

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7. Periclimenaeus diplosomatis 8. Periclimenaeus diplosomatis 9. Periclimenaeus goriodarum 9. Periclimenaeus pondiarum 9. Periclimenaeus hecate 9. Periclimenaeus orbitospinatus 9. Periclimenaeus orbitospinatus 9. Periclimenaeus pochydentatus 9. Periclimenaeus pachydentatus 9. Periclimenaeus rastrifer 9. Periclimenaeus trodope 9. Periclimenaeus tuomotae 9. Periclimenaeus tuomotae 9. Periclimenes oesopius 9. Periclimenes oesopius 9. Periclimenes oesopius 9. Periclimenes affinis 9. Periclimenes adaga + Periclimenes aleocki 9. Periclimenes aleocki 9. Periclimenes ampoinensis 9. Periclimenes ampoinensis 9. Periclimenes ampoinensis 9. Periclimenes anacanthus 9. Peric											+								
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Periclimenaeus gorgonidarum	3. Periclimenaeus diihautensis	:				•	-							•	•		•	•	•
1. Periclimenaeus hecate	Periclimenaeus gorgonidarum		т.		+		•				+	•		•	•		•	•	
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2. Periclimenaeus proches 3. Periclimenaeus pachydentatus 4. Periclimenaeus rastrifer 5. Periclimenaeus ridentatus 6. Periclimenaeus tridentatus 7. Periclimenaeus tridentatus 8. Periclimenaeus acopius 9. Periclimenaeus afinis 9. Periclimenaeus afinis 9. Periclimenaeus alegrias 9. Periclimenaeus alegrias 9. Periclimenaeus alegrias 9. Periclimenaeus amboinensis 9. Periclimenaeus amboinensis 9. Periclimenaeus amboinensis 9. Periclimenaeus amboinensis 9. Periclimenaeus anacanthus 9. Periclimenaeus anacan	. Periclimenaeus orbitospinatus										Ċ								
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Periclimenes alegrias		ŀ					+				+			+		+			
Periclimenes amboinensis Periclimenes amymone Periclimenes anacanthus Periclimenes anacanthus Periclimenes anatenuatus Periclimenes brocketti Periclimenes of, calmani Periclimenes carinidactylus Periclimenes carinidactylus Periclimenes carinidalmus					+	+		+			+		+						
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Periclimenes brevicarpalis + + + + + + + + + + + + + + + + + + +	Periclimenes attenuatus								+						+				
Periclimenes cf. calmani	Periclimenes brevicarpalis	-	+	+	+	+	+	+		+			+	+	+	+			
Periclimenes carinidactylus	Periclimenes brocketti					+													
Periclimenes ceratophihalmus . + + + + + + + + + + + + + + + + + +	Periclimenes of calmani .								+										
Periclimenes colon ani	Periclimenes ceratonhibat		:			:						0							
	Periclimenes colemani .		+	•	+	+			+		+ O			+	+	•	•		

SPECIES									LOCA	ALI'	ΓY							
	Α	В	С	D	E	F	G	Н	пw	I e	s	J	K	L	М	N	О	
94. Periclimenes commensalis		+		+			+	+		+		+	+	+	+			_
95. Periclimenes consobrinus		+	•	+		•	+	+		+	•	т.	-		т.	•	•	
96. Periclimenes cornutus				•	+		-	+		+			•	•	•	•	•	
97. Periclimenes cristimanus			•		•	•	+	•	•	+	•	•	+	•	•	•	•	
98. Periclimenes darwiniensis			•	•	•				o	,	•	•			•	•	•	
99. Periclimenes denticulaius		•	•		•	•	+	•	U	+	•	•	+	•		+	•	
00. Periclimenes diversipes	+	+			+	+	+	•	+	+	•	•		•		•	•	
01. Periclimenes elegans	+	+	+	- 1	+	+	+	- 1	+	+	•	+	+	•		•	•	
02. Periclimenes franklini				,	,			,	,	Ó	•		,	•		•	•	
03. Periclimenes galene	•	+	•	•	•	•	•	+	•	+	•	•	•	•		•	•	
04. Periclimenes gonioporae		+	•	+						+	•	•	•		•	•	•	
05. Periclimenes granulimanus			•	+	•	•	•	•	•	+	•	•	•	•	•	•	•	
06. Periclimenes hertwigi		•	•		•		•	· .		+	•	+	•		÷	•	•	
07. Periclimenes holthuisi	+	+	•	+	+	+	+	+	- 1	+	•	1	+	- 1	1	•	•	
08. Periclinienes iniperator	+	+	•	+		•	т.			+	•	+	+	+	-	•	•	
09. Periclimenes incertus	,	+	+	+	+	+	+	•	+	+	•	,	+	,	- 1	•	-	
10. Periclinienes indicus	•	т.	т.	т.	т.	+	+	T .		+	•				т.	•	•	
11. Periclimenes inornatus	•	+	•	+	- 1	+	+	I		+	•	+	+			•	-	
12. Periclimenes investigatoris	•	т.	+	т.	т-	т-	+	т.		+	•	-			7	•	•	
13. Periclimenes kempi	+	+				+	+	•	+	+		•				•	•	
	т	+		•		+	+		+		•		:	•	+	•	•	
14. Periclimenes kororensis	•						,	+		+			+					
15. Periclimenes laccadivensis				•	+		+			+	+						+	
16. Periclimenes sp. nov. a										0								
17. Periclimenes lanipes	*	+		+		+	+	•		+		•			+			
18. Periclimenes longirostris	+	+		+	+	+	+	+		+			+	+				
19. Periclimenes lutescens	+	+		+	+	+	+	+		+		+	+	+	+	?		
20. Periclimenes madreporae				+						+			+	+				
21. Periclimenes magnificus							+	+		+		+						
22. Periclimenes muhei		+		+					+	+								
23. Periclimenes nilandensis		+		+	+		+	+		+					+			
24. Periclimenes ornatellus										+			+					
25. Periclimenes ornatus	+	+					+	+		+		+	+					
26. Periclimenes pectiniferus								+		+								
27. Periclimenes platycheles								+		+				+	+			
28. Periclimenes sp. nov, b										0								
29. Periclimenes psamathe		+		+	+	+	+	+		+		+	+	+	+			
30. Periclimenes ruber										0								
31. Periclimenes seychellensis	+	+	+	+	+	+	+	+		+			+	+	+			
32. Periclimenes soror	+	+	+	+	+	+		+		+		+	+	+	+		+	
33. Periclimenes spiniferus				+	+	+	+	+	+	+		+	+	+	+	+		
34. Períclimenes tenuipes	+	+		+	+	+		+	+	+		+	+	+	+			
35. Periclimenes tenuis								+		+		+	+					
36. Periclimenes toloensis		+					+		+	+								
37. Periclimenes venustus	•		•	•			+		+			?						
38. Periclimenes yaldwyni	•	•	•	•	•	•			,	+								
39. Periclimenes zanzibaricus	•		•	+	•	•	•	•	+		•		•					
	i.	Τ.	•	т.		•	•	- 1	,	+	+	•	+					
10. Periclimenoides odontodactyi	+			+		:	+	т .		Ţ	т	+	+	•	-			
41. Philarius gerlachei	+	-		+			+	+		Ţ	•	+	+	•	'		•	
12. Philarius imperialis	+	+		+	•	•	Τ.	т.		T.	•	т.	-	•	•	•	•	
43. Philarius lifuensis		•				•	+	+	•	+	•	+	+	•	+	•	•	
14. Platycaris latirostris	•	+		+	•	•	Τ.	-		+	•		т.		т.	•	•	
15. Plutypontonia brevirostris	•			+	•		+		•	+	•		•		+	•	•	
16. Pliopontoniu furtiva	•	+	•			•	_	+		O	•	т.	•	•		•		
17. Pontonia urdeue	•		•	•	•	1.	•	+	+	+	•		•		+	•	•	
18. Pontonia kutoi	•	+	•	•	•			-	-	ŏ	ò		•		4	•	•	
19. Pontonia minuta				•	•					U	U	•	•		•	•	•	
50. Pontonia okai		+	+	•	•	+	+	+	+		•	•	•		•			
51. Pontonia sibogue	•		+	+				+		+		•		•	•	•	•	
52. Pontonia stylirostris	•	+	+				•	+		+		:	•		•			
53. Pontonides sp.	+	+		+	•					+		+	:		+		•	
4. Pontoniopsis comanthi	+	+		+		100		+	•	+		+	+		-	•	•	
i5. Propontonia pellucida		+		+	•					+		•	•			•		
66. Stegopontonia commensalis		+		+						+		+			+		+	
7. Thaumastocaris streptopus	+	+		+			+	+		+			+		+	•		
8, Tuleariocaris holthuisi		+		+						+							+	
9. Typton anomalus									0									
0. Typton australis										0								
51. Typton bawii		+								+								
52. Typton dentatus										+		+						
3. Typton dimorphus									0									
54. Typton nanus									0									
		+		+						+								
65. Typton wasini 66. Vir orientalis	•	+		+		+	+	+		+			+				+	
		T		т			+			4		+						
57, Vir philippinensis	•				•	•	4.			,		-						
58. Zenopontonia noverca		+		+						+					*			

Table 2. The pontoniine shrimp faunae of Indonesia (I), Australia (A) and New Caledonia (NC). (+ = species present; O = not yet known outside designated area X = species occurring in depths of more than 100 m)

SPECIES		LOCA	LITY L. NC	SPECIES		LOCAL	
		1. 2			1.	A.	NU
1. Allopontonia iaini Bruce, 1972 2. Altopontonia disparostris Bruce, 1990	-	+		79. P. diplosomatis Bruce, 1980	-	0	
3. Anapontonia denticauda Bruce, 1966	_	+	+	80. P. djiboutensis Bruce, 1970 81. P. gorgonidarum (Balss, 1913)		+	-
4. Anchistus australis Bruce, 1977	+	+	+	82. P. hecate (Nobili, 1904)	+	+	_
5. A custaides Bruce, 1977	+			83. P. holthuisi Bruce, 1969	o	_	_
6. A. cusios (Forskål, 1775)	+	+	-	84. P. minutus Holthuis, 1952	+	-	_
7. A. demani Kemp, 1922	+	+	+	85. P. nobilii Bruce, 1974	+	-	-
8. A. gravieri Kemp, 1922	-	+	+	86. P. orbitospinatus Bruce, 1969	-	0	-
9. A. miersi (De Man, 1888)	+	+	+	87. P. orontes Bruce, 1986	-	0	-
10. A. pectinis Kemp, 1925	-	+	+	88. P. pachydentatus Bruce, 1969	-	0	-
11. Apapantonia dubia Bruce, 1981 12. A. falcirostrix Bruce, 1977	-	+	+	89. P. rustrifer Bruce, 1980	-	+	+
13. A. tridentata Bruce, 1988		+ O	-	90. P. rhodope (Nobili, 1904) 91. P. spongicola Holthuis, 1952	0	+	_
14. Aruiapontonia odontnrhyncha	_	U	_	92. P. tridentatus (Miers, 1884)	+	+	_
Fujino and Miyake, 1970	+	+	+	93. P. truncaius (Rathbun, 1906)	+		_
15. Carinopontonia paucipes Bruce, 1988	_	0	_	94. P. tuamotae Bruce, 1969	_	+	_
16. Chernocaris placunae Johnson, 1967		+	_	95. Periclimenes aesopius (Bate, 1863)	-	0	-
17. Conchodytes kempi Bruce, 1989	+	+	-	96. P. affinis (Zehntner, 1894)	-	+	+
18. C. muculatus Bruce, 1989		O	-	97. P. agag Kemp, 1922		+	+
19. C. meleagrinae Peters, 1852	+	+	+	98. P. alcocki Kemp, 1922	-	O	-
20. C. manodactylus Holthuis, 1952	+	+	-	99. P. alegrias Bruce, 1986	-	+	-
21. C. nipponensis (De Haan, 1844)	-	+	-	100, P. ambainensis (De Man, 1888)	+	+	+
22. C. tridacnae Peters, 1852 23. Coralliocaris brevirastris Borradaile, 1898	+	+	+	101. P. amymnne De Man, 1902	+	+	+
24. C. graminea (Dana, 1852)	+	+		102. P. unacanthus Bruce, 1989	-	O +	-
25. C. superba (Dana, 1852)	+	++	+	103. P. andumanensis Keinp, 1922 104. P. uttenuutus Bruce, 1971	+	+	
26. C. venusta Kemp, 1922	+	+	+	105. P. brevicarpalis (Schenkel, 1902)	+	+	+
27. C. viridis Bruce, 1974	+	+		106, P. brocketti Borradaile, 1915	- 1	+	
28. Dasella ansoni Bruce, 1983	_	0		107. P. brackl (De Man, 1888)	0		_
29. D. brucei Berggren, 1990		0	_	108, P. calmani Tattersall, 1921	+	-	
30. Dasycaris ceratops Holthuis, 1952	+	O	-	109. P. carmidactylus Bruce, 1969		O	-
31. D. symbiotes Kemp, 1922	-	-	+	110. P. ceratophthalmus Borradaile, 1915	+	+	-
32. D. zanzibarica Bruce, 1973	-	+	+	111. P. colemani Bruce, 1975	-	O	-
33. Epipantonia uncepx Bruce, 1983	-	0	-	112. P. commensalis Borradaile, 1915	+	+	+
34. Exopontonia malleatrix Bruce, 1987	-	O	-	113. P. cansohrinus (De Man, 1902)	-	+	-
35. Fennera chacei Holthuis. 1951 36. Gnathophylloides mineri Schmitt, 1933	-	+	-	114. P. cornutus Borradaile, 1915	•	+	-
37. G. robustus Bruce 1973	•	+	•	115. P. cristimanus Bruce, 1965	-	+ O	-
38. Hamodactyloides incompleius (Holthuis, 1953)	-	0	-	116. P. darwiniensis Bruce, 1987	-	+	-
39. Hamodactylus aqabai Bruce and Svoboda, 1983	+	+		117. P. denticulatus Nobili, 1906	1	+	•
10. H. boschmai Holthuis, 1952		+	+	118. P. digitulis Kemp, 1922 119. P. diversipes Kemp, 1922	T .	+	
1. H. nounieue Bruce, 1970	- 1	+	+	120. P. elegans (Paulson, 1875)	+	+	_
2. Hamopontonia corallicola, Bruce, 1970	+	+		121. P. franklini Bruce, 1990		хO	_
3. H. essingtoni Bruce, 1986		0	_	122. P. fujinni Bruce, 1990		-	хO
4. Harpiliopsis beaupresii (Audouin, 1825)	+	+	-	123. P. gulene Holthuis, 1952	+	+	-
5. H. depressa (Stimpson, 1860)	+	+	+	124. P. gonioporae Bruce, 1990	-	+	-
6. H. spinigera (Ortmann, 1890)	+	+	-	125. P. grandis (Stimpson, 1860)	+	-	-
7. Ischnoponionia lophos (Barnard, 1962)	-	+	-	126. P. gronulimanus Bruce, 1978	-	+	•
8. Isopontania platycheles Bruce, 1982	•	-	0	127. P. hertwigi Balss, 1913	х	Х	х
9. Jocaste japonica (Ortmann, 1890)	+	+	+	128. P. holthuisi Bruce, 1969	+	+	+
0. J. lucina (Nobili, 1901) 1. Mesopantonia gorgoniophila Bruce, 1967	+	+	+	129. P. imperator Bruce, 1967	-	+	+
2. M. gracilicarpus Bruce, 1990	-	х	-	130. P. incertus Borradaile, 1915	+	+	+
3. Miopantania yongei Bruce, 1985	-	0	X	131. P. indicus (Kemp, 1915)	+	+	
4. Onycocaridella mnnodoa Fujino and Miyake, 1969		+	•	132. P. inarnatus Kemp, 1922 133. P. investigatoris Kemp, 1922	T .	1	
5. O. prima Bruee, 1981		+		134. P. ischtospinosus Bruce, 1990	_		0
6. O. stenolepis Holthuis, 1952	+		_	135. P. jugalis Holthuis, 1952	+		
7. Onycocaridites anomodactylus Bruce 1987		0	_	136. P. kempi Bruce, 1969		+	_
3. Onycocaris amakusensis Fujino and Miyake, 1969	_	+		137, P. kororensis Bruce, 1977	-	+	
O. longirostris Bruce, 1980	-	-	0	138. P. laccadivensis (Alcock and Anderson, 1894)	-	х	-
O. O. oligdentata Fujino and Miyake 1969	-	+		139. P. sp. nov. a - Bruce, 1991a	-	O	-
O. quadratophthalma (Balss, 1921)	-	+		140. P. lanipes Kemp, 1922	-	+	+
2. O. spinosa Fujino and Miyake, 1969	-	+	-	141. P. latipollex Kemp, 1922	х	-	-
3. Orthopantonia ornata (Bruce, 1969)	•	+	•	142. P. longirnstris (Borradaile, 1915)	-	+	-
3. Palaemonella lata Kemp, 1922 5. P. dolichodactylus Bruce, 1990	+	-		143. P. lutescens auct.	+	+	-
. P. pottsi (Borradaile, 1915)	-	-	0	144. P. madreporae Bruce, 1969	+	+	-
. P. rotumana (Borradaile, 1898)	+	+	-	145. P. magnificus Bruce, 1979	+	+	
P. spinulata Yokoya, 1956	+	+	+	146. P. mahei Bruce, 1969	+	+	
P. tenuipes Dana, 1852	+	+		147. P. nilandensis Borradaile, 1915 148. P. novaecaledoniae Bruce, 1968	-		+
). Paranchistus ormatus (H.Milne-Edwards, 1837)	+	+	-	149. P. ornotellus Bruce, 1979	_	+	_
. P. pycnadontae Bruce, 1978		Ŏ		150. P. ornatus Bruce, 1979	+	+	
. P. serenei Bruce, 1983	o°			151. P. parvispinatus Bruce, 1990	_	-	хO
. Parapontonia nudirastris Bruce, 1968		+	+	152. P. parvis Borradaile, 1898	+	-	
. Paratypton siebenrocki Ralss, 1914	+	+	-	153. P. pectiniferus Holthuis, 1952	+	+	-
. Periclimenaeus arabicus (Calman, 1939)		+	+	154. P. plutycheles Holthuis, 1952	+	+	-
P. ardeae Bruce, 1970		+	-	155. P. sp. nov. h - Bruce, 1991b	-	O	-
. P. arthrodactylus Holthuis, 1952 . P. bidentatus Bruce, 1970	O	-	-	156. P. psamathe (De Man, 1902)	+	+	+
		+	+	157. P. richert Bruce, 1990			хO

SPECIES	LC 1,	CALI A.	TY NC	SPECIES	LC	CALI'	TY
						711	110
158. P. ruber Bruce, 1982		O	-	181. Pontonia ascidicola Borradaile, 1898	x	_	_
159. P. seychellensis, Borradaile, 1915	+	+	+	182. P. katoi Kubo, 1940	+	+	+
160. P. sibogae Holthuis, 1952	0	-		183. P. minuta Baker, 1907	_	0	-
161. P. soror Nobili, 1904	+	+	+	184. P. monnioti Bruce, 1990	_	-	x C
162. P. spiniferus De Man, 1902	+	+	-	185. P. okai Kemp, 1922	+	+	-
163. P. tenuipes Borradaile, 1898	+	+	+	186. P. sihogae Bruce, 1972	+	+	
164. P. tenuirostris Bruce, 1990	-	_	0	187. P. stylirostris Holthuis, 1952	+	+	_
165. P. tenuis Bruce, 1969	+	+		188. Pontonides unciger Calman, 1939	+	+	
166. P. toloensis Bruce, 1969	-	+	-	189. Pontonides sp.	_	+	+
167. P. umunguiculatus Bruce, 1990	-	_	хO	190. Pontoniopsis comanthi Bortadaile, 1915	+	+	
168. P. vaubani Bruce, 1990		-	хO	191. Propontania pellucida Bruce, 1969	_	+	
169. P. venustus Bruce, 1990		+	-	192. Stegopontonia commensalis Nobili, 1906		+	+
170, P. yaldwyni Holthuis, 1959		+	-	193. Thaumastocaris streptopus Kemp, 1922	+	+	+
171. P. zanzibaricus Bruce, 1969		+	-	194. Tuleariocaris holthuisi Hipcau-Jacquotte, 1965		4	
172. Periclimenoides odontodactylus				195. Typton anomalus (Bruce, 1979)	_	Ó	_
(Fujino and Miyake, 1968)		+	-	196. T. australis Bruce, 1973	_	Ô	
173. Philarius gerlachei (Nobili, 1905)	+	+		197. T. bawn Bruce, 1972	_	Ö	
174. P. imperialis (Kubo, 1940)	+	+	-	198. T. dentatus Fujino and Miyake, 1969	_	+	
175. P. lifuensis (Borradaile, 1898)	-	+	+	199. T. dimorphus Bruce, 1986	_	+	
176. Platycaris latirastris Holthuis, 1952	+	+	+	200. T. nanus Bruce, 1987	_	Ó	
177. Platypontonia hrevirostris (Miers, 1884)	-	+	-	201. T. wasini Bruce, 1977	_	ő	
178. P. hyotis Hipeau-Jacquotte, 1971	+	-		202. Vir orientalis (Dana, 1852)	+	+	
179. Pliopontonia furtiva Bruce, 1973	+	+	+	203. V. philippineusis Bruce and Svoboda, 1984		+	
180. Pontonia ardeae Bruce, 1981	-	0		204. Zenopontonia noverca (Kemp, 1922)	_	+	+

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Accepted 20 August 1990